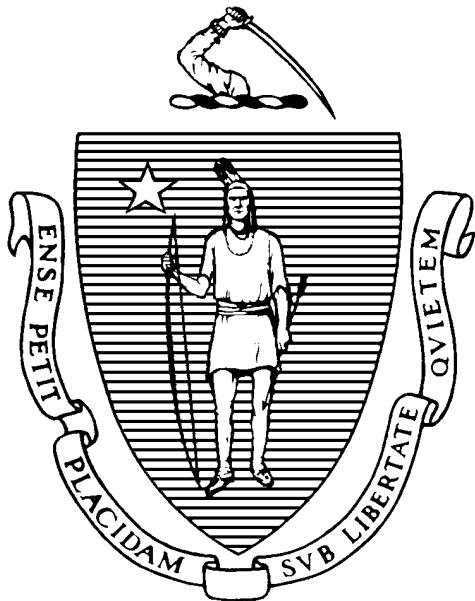


INDICATIVE PROJECT SUMMARIES

SECTION 104(b)(3) GRANT PROGRAM WETLAND AND WATER QUALITY

FEDERAL FISCAL YEARS 1990 - 1997



MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF RESOURCE PROTECTION
DIVISION OF MUNICIPAL SERVICES
Andrew Gottlieb, Director

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
SECTION 104(b)(3) WETLAND AND WATER QUALITY GRANT PROGRAM**

**INDICATIVE PROJECT SUMMARIES
FEDERAL FISCAL YEARS 1990 - 1997**

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SEPTEMBER 1997

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INTRODUCTION

This report presents brief descriptions of the fifty (50) Department of Environmental Protection (DEP) projects financed under Section 104(b)(3) Clean Water Act Wetlands and Water Quality competitive and base grant program during federal fiscal years 1990 through 1998. Section 104(b)(3) of the Clean Water Act of 1977 authorizes the awarding of funds to states for the prevention, reduction, and elimination of pollution in wetlands and waters of the United States.

Prior to 1997, each New England state submitted their priority projects to the USEPA Region 1 Headquarters for review and approval. Grant funds under the 104(b)(3) program are made available to Massachusetts Agencies under the National Environmental Performance Partnership Agreement (NEPPA) with the US EPA. These grants are administered by the Department of Environmental Protection, Bureau of Resource Protection.

The NEPPA emphasizes a results oriented approach to focus attention on environmental protection goals and the efforts to achieve them. Water quality and wetland protection goals as outlined in the Performance Partnership Agreement include:

- Ensure that every public water supply consistently provides water that is safe to drink;
- Reduce, eliminate, and/or control both point and non-point discharges to surface and ground water;
- Reduce and reverse acidification of water bodies in Massachusetts and other jurisdictions affected by Massachusetts and transported SO_x and NO_x emissions;
- No-net-loss of wetland resources;
- Minimize unpermitted filling and/or alteration of wetlands;
- Minimize indirect degradation of wetland functions from stormwater runoff; and
- Discourage projects in or directly adjacent to wetlands.

Additional statewide or watershed specific priorities may be established by the Department annually. All Massachusetts Executive Office of Environmental Affairs (EOEA) Agencies developing or implementing projects to achieve these water quality or wetland goals are eligible to submit grant proposals. Each submittal must clearly identify the state agency contact who will bear primary responsibility for overseeing the project if funded. Any assessment work proposed under this program must be consistent with either the Basin Water Quality Management Plan recommendations or the 5-year Basin Cycle.

Non-profit organizations such as watershed associations, regional planning agencies, and Universities are eligible to submit proposals through an EOEA sponsoring agency. Their proposals must clearly identify both the state agency co-sponsor and the EOEA principal contact who will bear primary responsibility for the project.

Proposals submitted for Clean Water Act Section 104(b)(3) wetlands projects must identify a 25 % non-federal match (25% of total project cost). State funded in-kind services can be provided as the non-federal match. Projects should be results oriented and consistent with water quality and wetland goals, wetland & watershed restoration plans, and basin water quality management plans.

Each year DEP issues a Request for Submittals (RFS) for competitive projects to be funded under 104(b)(3). The RFS highlights the schedule for each step of the application process, proposal content requirements, and any watershed-specific priorities. Applicants are encouraged to contact DEP with any questions regarding project eligibility or other RFS matters. DEP staff will work with each applicant to develop proposals that are consistent with DEP's resource protection goals and management strategies. Proposal evaluation criteria generally includes: clarity and completeness of proposal, likelihood of success, success of previous projects, results oriented project, and consistency with wetland and water quality goals, wetland and watershed restoration plans, and basin water quality management plans.

While many projects are basin-specific, some have a statewide perspective and focus on program development or enhancement. New, innovative approaches to addressing wetland and water quality problems have been funded through Section 104(b)(3) such as the Circuit Rider approach, training programs for new wetland delineation methodologies, and revised 401 Water Quality Certification regulations which streamlined the application and permitting process. These and other projects have resulted in state regulatory programs adopting new ways of doing business and increased protection of the Commonwealth's wetland and water resources.

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 90-01/104

PROJECT TITLE: Blackstone River Initiative

INVESTIGATOR: Department of Environmental Protection

LOCATION: Blackstone River Basin

DESCRIPTION: This project will evaluate the ambient environmental integrity of the Blackstone river system and the toxic conditions of the river. The two key elements of this project are: 1) collection of wet-weather stormwater data and 2) assessment of bioaccumulation of toxicants in fish.

Specific tasks of the project are as follows:

1. collect wet-weather stormwater sample, including field and laboratory testing;
2. collect and analyze fish tissue for toxicants determination; and
3. summarize the fish toxic data in a final report.

COST: \$25,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1993 - 1995

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 91-01/104

PROJECT TITLE: Reduction in Fitchburg Combined Sewer Overflows

INVESTIGATOR: City of Fitchburg

LOCATION: Nashua River Basin

DESCRIPTION: The goal of this project is to abate pollution from combined sewer overflows in the town of Fitchburg which has 60 overflow points at peak flow. This project includes selected improvements designed to reduce the volume of combined sewer overflows and construction/resealing of several manhole structures to reduce infiltration and realignment of siphons to reduce blockages that result in unintended overflows. The outputs/results of this project will encourage other cities of Massachusetts to participate in CSO pollution abating.

Specific tasks of the project are as follows:

1. reconstruct manholes at five selected locations by raising weir height; and
2. replace Sheldon Street Siphon by constructing a new pipeline.

COST: \$34,000

FUNDING: \$20,000 by the U.S. Environmental Protection Agency
\$14,000 by the City of Fitchburg

DURATION: 1993 - 1995

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 91-02/104

PROJECT TITLE: Lowell BMP/Source Control Study

INVESTIGATOR: City of Lowell

LOCATION: Merrimack River Basin

DESCRIPTION: The goal of this project is to develop a storm model strategy specifically for CSO abatement for the city of Lowell. A summary of current system management practices will be prepared. The City of Lowell's strategy for CSO abatement will be a sound example for other communities on the Merrimack River to follow.

Specific tasks of the project are as follows:

1. data collection and selection of a study basin;
2. survey of potential sources;
3. develop a sampling program plan;
4. dry weather sampling program;
5. wet weather sampling program;
6. data reduction and analysis;
7. BMP/Source control evaluation; and
8. report preparation, meetings and project management.

COST: \$94,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1993 - 1995

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 92-01/104

PROJECT TITLE: Connecticut River Combined Sewer Overflow Correction Project

INVESTIGATOR: Pioneer Valley Planning Commission

LOCATION: Connecticut and Chicopee Basins

DESCRIPTION: This project will implement conventional corrective measures and assess the feasibility of innovative technology to mitigate combined sewer overflows in portions of the Connecticut River in Massachusetts.

Specific components of this study include:

1. replacement of existing conventional wooden flap gates with "Duckbill" backwater gates at two CSO locations in Springfield. The purpose of this is to reduce backflow of the Connecticut River into the city's sewer system during periods of high water in Connecticut River and to mitigate combined sewer discharges to the rivers. A monitoring program will be instituted to evaluate the performance of the new duckbill flap gates. This will include routine inspections during and after storm events; and
2. study the feasibility of siting and design for a constructed wetland to treat effluent from a selected number of CSO's located in downtown Chicopee. For the feasibility study, this will include a literature review, site assessment, and an analysis of necessary permits and regulatory issues. The design portion will include engineering design plans, landscape architectural drawings, a description of a water quality sampling and monitoring, and a description and costs of an operation and maintenance program.

COST: \$221,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1993 - 1996

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 92-02/104

PROJECT TITLE: Wetlands Program Public Education and Outreach

INVESTIGATOR: Division of Wetlands and Waterways

LOCATION: Statewide

DESCRIPTION: The objective of this project is to enhance and expand wetlands educational and outreach capabilities by publishing reports, newsletters and fact sheets about wetlands. This project also involves educating the public on wetland issues through workshop presentations.

Specific tasks of this project are follows:

1. publish support materials for various Division of Wetlands and Waterways initiatives including Agricultural Regulatory revision and Farming in Wetlands guidance manual;
2. publish biannual wetlands report and new wetlands alert newsletter;
3. arrange workshop presentations;
4. produce a regulatory guidance fact sheet on the construction and use of boat pumpout facilities to protect coastal wetlands and waters;
5. develop general wetlands brochure, wetlands protection brochure, wetlands conservancy informational document, and wetlands public interest booklet;
6. update Wetlands Protection enforcement manual; and
7. update Wetland Conservancy video that explains wetlands functions and interests.

COST: \$78,267

FUNDING: \$58,700 by the U.S. Environmental Protection Agency
\$19,567 by the Department of Environmental Protection

DURATION: 1991 - 1997

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 92-03/104

PROJECT TITLE: Integration of 401 Water Quality Certification Process into Wetlands Protection Program - Phase I

INVESTIGATOR: Division of Wetlands and Waterways

LOCATION: Statewide

DESCRIPTION: The purpose of this project is to integrate the wetland protection efforts of two currently separate DEP regulatory programs that affect wetlands; the Wetlands Protection program and the 401 Water Quality Certification program. The three key elements of this project are:

1. provide support to the Bureau of Resource Protection to integrate the 401 process with the Wetlands Protection Act;
2. develop a Water Quality Certification training program for regional wetlands staff and conservation commission members as well as information for the regulated community; and
3. develop a Wetland Protection Program permit tracking system which includes 401 application data.

Specific tasks of the project are as follows:

1. BRP Program Integration;
2. training Program; and
3. integration of 401 data into WETINFO.

COST: \$102,141

FUNDING: \$80,374 by the U.S. Environmental Protection Agency
\$21,767 by the Department of Environmental Protection

DURATION: 1991 - 1995

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 92-04/104

PROJECT TITLE: A Two-Tiered Approach to Functional Assessment of Wetlands

INVESTIGATOR: University of Massachusetts

LOCATION: Statewide

DESCRIPTION: The objectives of this project are:

1. review the current state and federal wetland assessment methodologies now used in Region I to identify their applicability to planning and site specific needs and the commonalities and differences between the methodologies;
2. develop and recommend a two-tier approach for assessment within the Region; and
3. identify the linkages between assessment and economics at the planning and permit review levels and present appropriate economic (market and non-markets) evaluation.

Specific tasks of the project are as follows:

1. collect field data that are needed to develop assessment methodologies;
2. prepare a report recommending regional planning level and trends analysis approaches to wetland functional assessment, based primarily on adaptations of existing methodologies; and
3. prepare a report that makes recommendations for site-specific quantitative assessment of each wetland function. Each recommendation will reflect the state of wetland science and the need for regional field trials.

COST: \$143,192

FUNDING: \$103,626 by the U.S. Environmental Protection Agency
\$ 39,566 by the University of Massachusetts

DURATION: 1991 - 1997

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-01/104

PROJECT TITLE: Implementation of Stormwater Permit Program

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: This project will help develop a coordinated and streamlined stormwater regulatory program strategy within the Bureau of Resource Protection to implement key components of the Clean Water Strategy. The three key components of this project are:

1. develop a plan for implementing storm water regulations based on highest priority needs, basin-wide plans, availability of staff time and "more protection with less process";
2. develop stormwater BMPs that will meet the combined requirements of the Wetlands Protection Act, Water Pollution Control stormwater regulations, Stormwater General Permit and conditions, and Water Quality/Anti-degradation Policy, and minimize overlapping efforts among these programs; and
3. ensure continued cross-divisional and cross-agency coordination and communication for successful implementation of integrated stormwater programs.

Specific tasks of this project are follows:

1. assessment of BRP Stormwater programs and draft report to BRP Assistant Commissioner;
2. develop BRP Stormwater Program Strategy using a basin approach;
3. draft stormwater BMP manual and submit final report to BRP Assistant Commissioner;
4. prepare stormwater plan guideline for applicants, BMP Manual, stormwater informational Brochure; and
5. Department of Environmental Protection staff training (2 workshops), and Public Outreach (4 workshops).

COST:	\$180,000
FUNDING:	100% by the U.S. Environmental Protection Agency
DURATION:	1993 - 1996

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-02/104

PROJECT TITLE: Evaluation of Drinking Water Supply Contributions of Copper to Selected Wastewater Systems in Massachusetts

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The goal of this project is to better define the dynamics of copper concentrations in potable water sources and wastewater effluent by conducting a year long survey from source to effluent discharge. The key objectives of this project are:

1. to evaluate source water contributions of copper beginning at the source, at critical points within the water distribution system and the waste streams passing through the waste water treatment system;
2. to institute a sampling and analytical program which will allow the reliable detection of copper and lead concentrations in the 1 to 20 microgram range; and
3. to integrate the lead and copper rule requirements into an overall strategy to evaluate several interrelated cross-program issues such as source water concentrations, contributions generated within the distribution system and effluent limitations.

Special tasks of this project are:

1. collect water and wastewater samples at selected locations; and
2. monitor parameters such as copper, lead, pH, temperature, specific conductivity, alkalinity, and hardness.

COST: \$251,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1992 - 1997

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-04/104

PROJECT TITLE: Implement Clean Water Strategy by Targeting Stormwater Controls and Wetland Impacts to Regain Use of Critical Resource Areas

INVESTIGATOR: Executive Office of Environmental Affairs, Wetland Restoration and Banking Program

LOCATION: Statewide

DESCRIPTION: This project will help to develop a model watershed basin strategy for aquatic habitat rehabilitation by identifying the co-occurrence of previously filled wetlands and stormwater discharges and by identifying critical regional wetland resource functions that are at high ecological and societal value within two specific geographic areas.

Specific tasks of this project are as follows:

1. identify data needs and sources and collect data for the following:
 - a. Wetlands - type, location, quantity, soils and hydrologic conditions
 - b. Water quality - standard parameters plus contaminant levels
 - c. Water dependent uses - docks, piers, waterfront structures
 - d. Land uses - open space, commercial, residential, landfills, hazardous waste generators
 - e. Water intakes and discharges - stormwater, industrial, treatment plants, CSO's; and
2. Prepare a final report detailing a regional strategy.

COST: \$110,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1993 - 1996

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-05/104

PROJECT TITLE: Microbiological Quality of the Merrimack River

INVESTIGATOR: Department of Environmental Protection

LOCATION: Merrimack River Basin

DESCRIPTION: Microbiological contamination of the Merrimack River associated with municipal wastewater effluent discharges and combined sewer overflows is a concern in this watershed. This research project will help to answer this question and to study the impact of seasonal disinfection or non-disinfection of wastewater effluents on microbiological water quality in the river.

Specific project tasks include:

1. sample fresh and estuarine waters and sediment from selected sites;
2. concentrate large volume of river water by membrane filtration for the recovery of bacteriophages and enteroviruses;
3. sample wastewater from identified point sources;
4. analyze water samples for pH, temperature, dissolved oxygen, conductivity, salinity, alkalinity, turbidity, TSS, COD and TOC and sediment samples for COD and TOC;
5. recover F(+)- specific coliphages from large volumes of river water and sediment slurries by filtration through positively charged microfilters; and
6. prepare a final report summarizing study results.

COST: \$86,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1993 - 1995

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-06/104

PROJECT TITLE: Final Phase of Integrating the 401 Water Quality Certification Program into the Wetlands Protection Program

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The purpose of this project is to develop and promulgate regulations governing the 401 Water Quality Certification program, and to develop a 401 Outreach Program. The two key elements of this project are:

1. provide support to the Bureau of Resource Protection (BRP) in developing and promulgating regulations that integrate the 401 Water Quality Certification process with the Wetlands Protection Act; and
2. develop a 401 Outreach Program to disseminate specific information regarding the proposed 401 regulations.

Specific tasks of this project are:

1. outreach Materials: Outreach coordinator will write and produce various education and training materials for general distribution and workshops for Department of Environmental Protection staff, local agencies, consultants, and others within the regulated community; and
2. training Workshops: Outreach coordinator will schedule and implement training workshops which will include presentations by technical experts in various fields related to 401 Water Quality Certification.

COST: \$113,616

FUNDING: \$84,712 by the U.S. Environmental Protection Agency
\$28,904 by the Department of Environmental Protection

DURATION: 1993 - 1995

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-07/104

PROJECT TITLE: Cumulative Assessment

INVESTIGATOR: Division of Wetlands & Waterways

LOCATION: Northeastern Massachusetts

DESCRIPTION: The loss of wetlands habitat continues in Massachusetts despite the existence of strong laws and regulations designed to prevent such loss. This project will help to assess the level of non-compliance with the Wetlands Protection Regulations and analyze the causes of that non-compliance.

The Division of Wetlands and Waterways will determine levels of non-compliance using the following sources of information:

1. existing Department of Environmental Protection permitting and enforcement files;
2. existing local permitting and enforcement files; and
3. wetland Conservancy Program maps.

The specific task of this project is to develop an approach, capable of implementation statewide, for analyzing the extent and causes of non-compliance with the Wetlands Protection Regulations.

COST: \$63,266

FUNDING: \$47,450 by the U.S. Environmental Protection Agency
\$15,816 by the Department of Environmental Protection

DURATION: 1992 - 1994

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-08/104

PROJECT TITLE: Development of Regulations for the 401 Water Quality Certification Process

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The initial goal of this project was to develop Wetland Water Quality Standards. With EPA approval, the project goal was revised to provide legal support in developing regulations for the 401 Water Quality Certification Process. The Division of Wetlands and Waterways with the support of the Water Quality Standards External Advisory Committee plans to use the 401 Regulations as the Commonwealth's Wetland Water Quality Standards.

Specific tasks of the project are as follows:

1. draft 401 Water Quality Certification regulations;
2. release these draft regulations for public review and comment; and,
3. revise and promulgate the regulations.

COST: \$51,307

FUNDING: \$38,480 by the U.S. Environmental Protection Agency
\$12,827 by the Department of Environmental Protection

DURATION: 1992 - 1995

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-09/104

PROJECT TITLE: Runnins River Stormwater Abatement Plan

INVESTIGATOR: Department of Environmental Protection

LOCATION: Narragansett Bay Coastal Drainage Basin

DESCRIPTION: The goal of this project is to assess wet ponds currently in use at commercial establishments in Seekonk, Massachusetts and to obtain further information regarding bacterial indicators of fecal contamination.

Specific tasks of this project are follows:

1. collection of available data regarding site plans and specifications for two of the wet ponds;
2. sampling of wet ponds to be done seasonally. This will include wet weather sampling of the influent and then subsequent in situ sampling after a rain event;
3. use a modelling program such as P8 to evaluate the best subwatersheds in which to focus implementation measures;
4. continue to provide information to NEIWPCC for the development of watershed protection measures and BMP performance standards;
5. assess the microbiological causes of elevated fecal coliform counts in the Runnins River; and
6. write progress and final reports. Meet with local officials to inform them of the findings and the relevance to town stormwater remedies.

COST: \$30,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1993 - 1996

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-10/104

PROJECT TITLE: Synthesize the NOAA Coastal Ocean Program Submerged Aquatic Vegetation Procedures With the Conventions of the Department of Environmental Protection Wetland Conservancy Program

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The project proposes to coordinate the research efforts of the WCP (Wetland Conservancy Program) and the COP (Coastal Ocean Program) in the use of 1:20,000 scale color photography to inventory the SAV (Submerged Aquatic Habitat) in selected areas of Massachusetts and Buzzards Bays. This project will apply and further develop the C-CAP (Change Analysis Program) protocols to accurately identify and delineate SAV habitat using photointerpretation and extensive field work in the project areas. This project will also help develop methodologies specifically appropriate to Massachusetts and the 1:5,000 scale orthophotoquad base maps.

Specific tasks of this project are:

1. field investigation;
2. photointerpretation of 1:20,000 aerial photographs; and
3. transfer of delineations to orthophotoquad base map.

The products of this project include:

1. one complete set of WCP 1:5,000 scale orthophotoquad base maps;
2. one complete set of the narrative documents that describe the data collection, processing; and
3. a final report describing the progress and experiences encountered during the course of this project and the utility of project data to the Wetlands Conservancy Program.

COST: \$22,650

FUNDING: \$ 9,500 by the U.S. Environmental Protection Agency

\$13,150 by the Department of Environmental Protection

DURATION:

1993 - 1994

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-11/104

PROJECT TITLE: Completion of Blackstone River Initiative

INVESTIGATOR: Massachusetts Department of Environmental Management

LOCATION: Blackstone River Basin

DESCRIPTION: The objectives of this project are to evaluate the data collected during dry-weather conditions in 1991 and to conduct a third storm water sampling event. This project will help to compile and analyze the data and promulgate a final dry-weather report to summarize the 1991 surveys. Included in this project will be a published data record as well as interpretive analysis of the results.

Specific tasks of this project are follows:

Dry Weather Section:

1. enter all data into a computerized system and review for QC/QA purposes;
2. create interpretive graphs for each parameter showing the concentrations and loading versus river mile for the length of the river; and
3. prepare a final report containing all field and laboratory data produced. This report will be produced in cooperation with the USEPA, the University of Rhode Island and Rhode Island Department of Environmental Management.

Wet Weather Section:

1. measure water height at several stations on the Blackstone River and selected tributaries; and
2. sample a third storm event to augment the wet weather field component of the project.

COST: \$20,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION:

1993 - 1996

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-12/104

PROJECT TITLE: Merrimack River Study

INVESTIGATOR: Department of Environmental Protection

LOCATION: Merrimack River Basin

DESCRIPTION: This project will help define existing conditions and problems of the Merrimack Watershed by prioritizing problem areas resulting from point and nonpoint sources. It will also help to assess the biological, chemical, and physical integrity of the waters within the Merrimack river basin.

Specific tasks of the project are as follows:

1. collect water samples for the analysis of temperature, dissolved oxygen, salinity, inorganic nutrients (nitrite, nitrate, and ammonia nitrogen, phosphorous and silicate);
2. collect biological samples (e.g., phytoplankton, macroinvertebrates); and
3. present outputs/results in a final report.

COST: \$15,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1993 - 1995

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-13/104

PROJECT TITLE: Rice City Pond Project

INVESTIGATOR: Department of Environmental Protection

LOCATION: Blackstone River Basin

DESCRIPTION: The Rice City pond project objectives are to produce remedial options for the site that are cost-effective, can be realistically implemented, provide maximum benefit and will ultimately result in the reduction or elimination of contaminated sediment resuspension and transport downstream.

Specific project tasks include:

1. develop GIS maps for engineering and planning applications;
2. characterize the site in terms of extent of contamination and development of realistic remedial options;
3. collect and analyze ambient water column samples; and
4. incremental analysis of full depth sediment cores.

COST: \$15,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1993 - 1995

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 93-14/104

PROJECT TITLE: Watershed "2000"

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: This project will focus on the NPDES wastewater discharge permits, water withdrawal permits, ambient water quality assessment and permit compliance within an entire watershed. This project will help develop water quality criteria, waste load allocation, assessment and analysis of water quality data and TMDL.

The objective of this project are to establish water quality criteria then issue NPDES permits for a watershed.

Specific project tasks include:

1. collect adequate water quality data and develop a protocol of the data necessary to establish the permit limits;
2. develop watershed based NPDES permit schedule which will bring all permittees and watersheds in the appropriate cycle by FY 1999;
3. interact with USEPA, other state agencies, the permitted community, and public interest groups in order to inform, update and seek feed back on the critical elements of the program; and
4. develop site specific criteria for metals.

COST: \$20,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1993 - 1995

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 94-01/104

PROJECT TITLE: Integrated Water Quality Management Program for Massachusetts

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: This project will help develop a watershed based approach to water resource management in two pilot watersheds (Westfield and Cape Cod) that will serve as a model protocol for the watershed assessments of all watersheds within the state.

Specific components of this project include:

1. resource Assessment: The status of the water resources within the watershed will be updated by monitoring water quality and biological resources, determining point source loading, and estimating NPS loadings;
2. permitting: Issuance of all major NPDES discharge permits, issuance of all minor NPDES permits, and issuance of water withdrawal permits;
3. compliance: The compliance of the NPDES discharges will be assessed by using USEPA PCS data and other monitoring data sources;
4. geographic Information System: GIS will be used to evaluate land use/types to estimate NPS loadings to the watershed and to identify sensitive resource areas within the watershed;
5. stormwater: The stormwater evaluation will focus upon the compliance of discharges requiring coverage under the USEPA stormwater permit program;
6. pre-Treatment: Pre-treatment audits for three major municipal wastewater treatment facilities in the watershed will be conducted;
7. sludge Management: The project will evaluate current sludge disposal methods within the watershed and determine compliance with MA Department of Environmental Protection regulations and the recently promulgated USEPA 503 sludge regulations; and
8. preparation of a water resource management report

COST: \$225,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1994 - 1996

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 94-02/104

PROJECT TITLE: Integrating Surface Water Protection Concerns Into the Massachusetts Comprehensive State Ground Water Protection Program (CSGWPP)

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The project will address inadequacies in the level of protection provided to surface drinking water supplies in existing state regulations and policies, and gaps in the integration of the protection of surface water and ground water supplies. The program may be used as a model by other states to enhance drinking water source protection and to include surface water concerns into CSGWPP development.

The following tasks will be performed:

1. identify inadequacies in existing regulations and policies;
2. meet with water suppliers to identify specific problems at drinking water sources;
3. evaluate protective strategies for new and existing small and large wells;
4. obtain input from multiple interests;
5. propose improvements and additions to regulations and policies;
6. use Geographic Information Systems (GIS) to map resource information; and
7. develop materials for public education and technical assistance, including a model surface water protection bylaw.

COST: \$65,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1995 - 1996

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 94-03/104

PROJECT TITLE: A Pilot Project Using Aquatic Macroinvertebrate Assessments for Targeting Priority River Basin Segments for TMDL Development

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The main two objectives of this project are: (1) to assess the water quality of streams within two watersheds slated for permitting activities in 1995 according to the schedule in the Clean Water Strategy; and (2) to employ aquatic macroinvertebrate biomonitoring to assess the need for watershed-based management of stormwater and other nonpoint sources of pollution, setting priorities for TMDL development, permitting and BMP implementation.

Specific tasks of the project are:

1. collect GIS land-use data and gather information from citizen groups, federal, state, and local agencies, and from field reconnaissance;
2. based on collected information, identify river segments within a watershed with potential nonpoint source pollution problems;
3. conduct chemical, microbiological and other biological sampling to assess the types of water quality problems that are present in the watersheds; and
4. conduct benthic macroinvertebrate sampling at locations identified as problem segments.

COST: \$108,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1994 - 1996

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 94-04/104

PROJECT TITLE: Utilizing Alternate Available Resources to Promote Water-Based Assessment and Permitting in Support of the Goal for Resource Protection

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: This project will help extract toxicity DMR information from reports and update Massachusetts's toxicity DMRs (Discharge Monitoring Reports) database. Ambient Water Quality, toxicity summaries, and compliance monitoring assessment summaries generated through this project will be utilized by OWM personnel to make effective permitting decisions and target areas which may need additional pollution prevention programs in order to achieve water quality standards.

Specific tasks of the project are:

1. extract toxicity DMR information from the reports; and
2. update State's toxicity testing database.

COST: \$10,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1994 - 1996

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 94-05/104

PROJECT TITLE: Dry and Wet Weather Effects of Storm Drain Systems on Selected Massachusetts Shellfish Areas: The First Step in Correcting the Problem

INVESTIGATOR: Massachusetts Office of Coastal Zone Management and the Town of Essex

LOCATION: North Coastal Drainage Area

DESCRIPTION: The areas most dramatically affected by non-point sources are shellfish beds. Many of the problems are related to runoff during wet weather either directly or through storm drains or by overflowing subsurface wastewater disposal system. This project contributes to the purchase and installation of Title 5 systems to replace/update failing septic systems demonstrated to affect shellfish habitat within Essex coastal waters. This project will support the efforts of the Inter-Agency Shellfish Bed Restoration Program.

This project will help to:

1. complete an inspection program to evaluate septic systems in certain areas of the town and trace contamination problems to their sources;
2. develop a plan for system upgrades or for new systems using standard Title 5 systems or Innovative Alternative Systems to upgrade or replace each failing system including applications for funding as appropriate;
3. construct and install new systems;
4. provide financial assistance to coastal Communities where the Massachusetts Division of Marine Fisheries has identified pollution in impacted shellfish beds for priority remediation; and
5. prepare a final report summarizing the data collected, the sources identified, the results of the public participation, and the remediation activities of the communities receiving grants for shellfish bed restoration.

COST:	\$80,000
FUNDING:	100% by the U.S. Environmental Protection Agency
DURATION:	1994 - 1997

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 94-06/104

PROJECT TITLE: Circuit Rider Approach Phase I - Targeted Public Outreach and Advanced Training for Conservation Commissions

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The goal of this project is to improve wetlands protection by providing direct technical assistance to conservation commissions through a pilot program using a Circuit Rider Approach. The Circuit Rider (an outreach specialist) will meet directly with Conservation Commissioners and other officials in each town. The Circuit Rider will provide technical assistance to commissions to help them make better decisions in their wetlands permitting.

Specific tasks of this project are:

1. develop a strategy for approaching conservation commissions and assessing education needs;
2. develop training curriculum for different commission experience levels;
3. develop support materials;
4. prepare list of critical needs in participating communities;
5. provide technical and regulatory expertise on recent Wetland Protection Regulatory changes and how to implement these changes; and
6. provide assistance with compliance and enforcement issues.

COST: \$118,000

FUNDING: \$94,000 by the U.S. Environmental Protection Agency
\$23,600 by the Department of Environmental Protection

DURATION: 1994 - 1997

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 94-07/104

PROJECT TITLE: Evaluation of Field Methodologies to Determine the 50% Wetland Line -Phase I

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The Division of Wetlands and Waterways will address this evaluation by collecting background data on the various methods that are currently employed by municipalities to establish wetland boundaries. This project will also help to determine the range of methods used by conservation commissioners to identify wetland boundaries based on vegetation.

Special tasks of this project are:

1. develop and distribute a questionnaire to conservation commissions to determine the specific methods used to determine wetland boundaries;
2. conduct a series of site visits for randomly selected Conservation Commissions per region; and
3. prepare a final report which summarizes the various delineation methods employed at the local level.

COST: \$25,000

FUNDING: \$20,000 by the U.S. Environmental Protection Agency
\$ 5,000 by the Department of Environmental Protection

DURATION: 1994 - 1995

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 95-01/104

PROJECT TITLE: Neponset River Watershed Modeling Project

INVESTIGATOR: Camp, Dresser, and McKee, Inc.

LOCATION: Neponset River Basin

DESCRIPTION: This project involves the development of computer modeling capability and user guidance necessary for implementation of the Statewide Watershed Management initiative in Massachusetts. A suite of watershed and river models will be identified and evaluated for use in developing relationships between land use, point and nonpoint source pollution, water withdrawal and water quality in rivers and estuaries throughout the state. The models will be used to predict changes in water quality from different pollution control strategies allowing targeting of those efforts which promise the greatest environmental benefit and economic return. To demonstrate this a model will be developed and applied in the Neponset River watershed to quantify pollution sources and assess in-stream impacts and assist in evaluating various best management control options.

Specific tasks will include:

1. define the analytical requirements of watershed planning in Massachusetts;
2. develop an inventory or "menu" of watershed runoff models and water quality models;
3. develop a "decision tree" to assist users in selection of appropriate models;
4. develop and apply a watershed and river model in the Neponset River Watershed; and
5. develop a plan to apply the modeling program statewide.

COST: \$229,622

FUNDING: \$194,622 by the Massachusetts Department of Environmental Protection

\$ 35,000 by CDM, Inc.

DURATION:

1995 - 1996

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 95-02/104

PROJECT TITLE: Title 5 Implementation and GIS Quality Control Study

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide Massachusetts

DESCRIPTION: This project will collect information to assist the Department address several issues related to the implementation of Title 5.

More specifically, this project will:

1. establish nitrogen loading criteria for commercial/non-residential land uses in nitrogen sensitive areas by determining typical raw effluent quality generated by representative land uses;
2. field test the Coastal Zone Management/Menzie-Cura Nitrogen Model in two embayments in Massachusetts Bay and conduct outreach and technical assistance to communities; and
3. update, verify, correct and quality control check the water resource overlays that are produced by Massachusetts GIS.

COST: \$114,330

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1996 - 1998

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 95-03/104

PROJECT TITLE: Case Study for the Development of Numeric Biological Criteria for the Wadable Rivers and Streams of Massachusetts

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide Massachusetts

DESCRIPTION: The purpose of this project is to design a case study for the development of numeric biological criteria for the wadable rivers and streams of Massachusetts.

Tasks to be completed include the following:

1. evaluate the physical habitat structure of least-disturbed reference streams in three ecological subregions (Vermont Piedmont, Worcester Monadnock Plateau, and Narragansett Bristol Lowland) and develop a quality of habitat index;
2. conduct on-site training for a core of Department personnel in the procedure of evaluating the physical structure of stream sampling sites;
3. design a plan for a case study of numeric biological criteria for wadable rivers and streams in Massachusetts;
4. identify capable providers of taxonomic services for macroinvertebrate, fish, and periphyton samples collected during the case study; and
5. complete project report as required.

COST: \$27,700

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1995 - 1998

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 95-04/104

PROJECT TITLE: Continuation of Circuit Rider Approach-Targeted Public Outreach and Advanced Training for Conservation Commissions

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: This project will complete and evaluate the "Circuit Rider" project which was previously funded by a FY 94 104(b)(3) grant (Project 94-06/104).

Specific tasks to be completed include:

1. continue providing technical and regulatory expertise on recent Wetland Protection Regulatory changes and how to implement these changes;
2. provide assistance with compliance and enforcement issues;
3. summarize individual town consultations and training sessions;
4. compile educational materials used during project; and
5. prepare final report which summarizes the Circuit Rider efforts and evaluates project effectiveness.

COST: \$26,250

FUNDING: \$21,000 by the U.S. Environmental Protection Agency
\$ 5,250 by Department of Environmental Protection

DURATION: 1995 - 1997

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 95-05/104

PROJECT TITLE: Wetland Delineation Methodology: Training for Conservation Commissions and State Wetlands Staff

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: This project will train conservation commissions, conservation agents and regional wetland staff on how to use the Division of Wetlands and Waterways new methodology to delineate wetland boundaries. Technical short courses will be conducted for wetland staff to increase their knowledge of wetlands to meet the ACOE Wetlands Delineator Certification program standards. Some basic equipment to sample and interpret soils will be purchased and distributed to conservation commissioners under this project.

Specific tasks of this project are:

1. conservation Commission/Conservation Agent Training: Conduct a minimum of 16 full day wetlands delineation training sessions for conservation commissions throughout the state;
2. wetlands Staff Training: Provide funds to support technical training for state wetlands staff;
3. basic Tools: Provide each of the 351 conservation commissions with the basic field tools necessary to conduct wetland boundary delineations using the proposed methodology; and
4. videotape: Produce a detailed step by step bordering vegetated wetland delineation videotape and provide copies for every conservation commission in the commonwealth.

COST: \$219,500

FUNDING: \$175,600 by the U.S. Environmental Protection Agency
\$ 43,900 by the Department of Environmental Protection

DURATION:

1995 - 1998

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 96-01/104

PROJECT TITLE: Development of Economics Model for Watershed Management

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The purpose of this project is to develop economic models or tools to assimilate, organize and analyze information to evaluate the costs and benefits of various Watershed Management options. The model will help facilitate understanding the relationship between point and nonpoint sources of pollution and water withdrawals. Information for determining affordability and prioritizing programs to protect and restore water quality and stream flow in Massachusetts waterbodies will be synchronized and presented.

Specific project tasks include:

1. produce a detailed work plan;
2. conduct a literature review of economic modeling and analysis;
3. select and examine economic modelling "case studies" applications that were identified during the literature review in more detail and describe approaches applicable in Massachusetts;
4. develop test methodology for Massachusetts application including procedures to establish economic benefits of water quality and quantity improvements;
5. employ test methodology as part of the planning process for a Massachusetts watershed;
6. establish protocols for quality control, storage and use of project data;
7. document project results in draft and final reports; and
8. develop a plan for statewide implementation.

COST: \$130,000

FUNDING: \$70,479 by the U.S. Environmental Protection Agency
\$67,521 by the Department of Environmental Protection

DURATION: 1996 - 1998

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 96-02/104

PROJECT TITLE: Charles River: Swimmable in 2005

INVESTIGATOR: Charles River Watershed Association and Massachusetts Institute of Technology

LOCATION: Charles River Watershed

DESCRIPTION: The purpose of this project is to continue with Phase II of the Charles River Watershed Association's Integrated Monitoring, Modeling and Management Project. This project involves the monitoring of river flow conditions, water and sediment quality assessment, modelling hydrologic, water quality and economic conditions in the watershed, and the development of a watershed management plan.

Specific Phase II project tasks include:

1. modeling watershed and groundwater hydrology;
2. invertebrate assessments; and
3. identification and implementation of corrective actions to improve water quality and quantity problems.

COST: \$101,311

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1996 - 1998

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 96-03/104

PROJECT TITLE: Technical Assistance to Implement Components of the New Massachusetts Source Water Protection Program

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The purpose of this project is to provide individualized technical assistance and guidance materials to water suppliers statewide to address identified water supply protection needs. Targeted surface water sources include direct river withdrawals and small wells.

Specific project tasks include:

1. conduct community workshops to assist public surface water suppliers with developing a surface water protection plan;
2. conduct statewide workshops to promote watershed (river basin) approach to drinking water protection, development of multi-community emergency response procedures, and better communication and partnership development with business, agriculture and community groups;
3. verify and distribute GIS maps (maps to identify surface and groundwater sources, land uses, waste facilities, USTs, and permitted discharges) to all municipal groundwater suppliers to assist with local planning and protection efforts;
4. conduct new outreach efforts and distribute new educational materials to agriculture and business associations to promote voluntary water supply protection efforts; and
5. evaluate project success and transferability.

COST: \$44,050

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1996 - 1997

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 96-04/104

PROJECT TITLE: Pilot Study for the Development of Numeric Biocriteria

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The purpose of this project is to provide the Department with a valid framework for the development of numeric biocriteria for streams and wadable rivers in Massachusetts.

This project will provide a sound basis for determining if biological community structure and function can be sufficiently described and consistently monitored with technically sound biosurveys to yield predictable -and repeatable - results so biocriteria derived from there can serve to protect the designated uses of wadable rivers and streams. The project will also determine how ecological subregion reference streams conserve as benchmarks of attainable water quality and to characterize pertinent reference conditions.

Specific tasks to be completed include:

1. selection of referenced and impaired stream sites within three ecological subregions;
2. conduct fish, aquatic macroinvertebrate and habitat assessments at each site; and
3. evaluate and interpret fish, aquatic macroinvertebrate, and habitat assessment data to determine if it sorts into distinct site classes based on subcoregions and, possibly, stream size.

COST: \$83,694

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1996 - 1998

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 96-05/104

PROJECT TITLE: National Pollutant Discharge Elimination System (NPDES)
Delegation Project

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: This project will collect information to assist the Department
develop a plan for NPDES delegation.

The following work tasks will be completed:

1. define NPDES program goals for Massachusetts through stakeholder involvement;
2. analyze current NPDES program structure and resource allocations;
3. evaluate alternative organizational structures, human resources and management approaches for a delegated program; and
4. estimate program costs associated with delegated program alternatives.

COST: \$110,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1996 - 1998

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 96-06/104

PROJECT TITLE: Development of a Comprehensive Resource Assessment Database in Support of the Integrated Water Quality Management Program

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The purpose of this project is to update, maintain and link DEP, Office of Watershed Management's water quality electronic databases. This effort will provide a comprehensive assessment of water quality and quantity conditions and will support the River Basin assessment process.

Specific project tasks include:

1. update and maintain toxicity testing and chemical analysis databases;
2. develop "look up" table linking toxicity database with the Water Body System database;
3. identify specific watershed and/or river segment location for NPDES facility water sampling stations;
4. modify existing fish toxicity monitoring database to include additional data fields;
5. initiate process of identifying "source" water at municipal sewage treatment facilities; and
6. initiate development and implementation of statewide relational database for environmental monitoring data.

COST: \$17,620

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 1996 - 1997

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 96-07/104

PROJECT TITLE: Bordering Vegetated Wetland Delineation Video

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: The purpose of this project is to produce a video of the Department of Environmental Protection's Bordering Vegetated Wetland delineation method for distribution to conservation commissioners. The video will provide a comprehensive overview of field techniques (including hydric soils, plant identification, and surface hydrology) to guide conservation commissioners through the delineation process. The video will provide the Department with another method to reach commissioners and others who are unable to attend a field session and will provide useful review material for those who have already attended a field training session.

Specific tasks of the project include:

1. produce and edit a bordering vegetated wetland delineation video; and
2. produce copies and distribute video to conservation commissions.

COST: \$71,000

FUNDING: \$57,000 by the U.S. Environmental Protection Agency
\$14,000 by the Department of Environmental Protection

DURATION: 1996 - 1998

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 96-08/104

PROJECT TITLE: Development of a Guidance Document for the Construction of Small Docks and Piers

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide Inland and Coastal Waters

DESCRIPTION: The purpose of this project is to develop guidance on design standards for new small dock and pier construction and distribute this information to conservation commissions statewide. The guidance document will cover design specifications, navigation issues, resource protection, and public access. The guidance will also address the revised Chapter 91 regulations for permitting small docks, piers and other structures associated with residential properties in coastal and inland waters. The new local permitting option which is available for these small structures if constructed according to DEP standards will be explained in the guidance document.

Specific project tasks include:

1. develop a guidance manual for small dock and pier construction; and
2. conduct a series of workshops statewide to explain the local permitting option and guidance document to conservation commissioners, lake and pond associations, municipal officials and dock owners.

COST: \$100,000

FUNDING: \$80,000 by the U.S. Environmental Protection Agency
\$20,000 by the Department of Environmental Protection

DURATION: 1996 - 1998

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 97-01/104

PROJECT TITLE: Stormwater and Nonpoint Source Impacts to Wetlands: Transferring a New Assessment Methodology

INVESTIGATOR: Massachusetts Office of Coastal Zone Management

LOCATION: North Coastal Drainage Area and Ipswich River Basin

DESCRIPTION: This project will apply a recently-developed Wetland Ecological Assessment method to selected wetland study sites in the North Coastal and Ipswich basins by training targeted groups, identifying wetlands adversely impacted by stormwater, and initiating wetland restoration and stormwater mitigation efforts. Methodology will be used by watershed teams and CZM to evaluate Wetland Ecological Integrity.

Specific tasks will include:

1. develop a list of wetland study sites and document associated land uses;
2. conduct wetland field investigations at selected sites;
3. conduct training sessions for watershed associations and basin team members on the field assessment methodology;
4. conduct informational meetings to present results; and
5. prepare final report which summarizes project results.

COST: \$61,700

FUNDING: \$45,250 by U.S. Environmental Protection Agency
\$16,450 by the Massachusetts Department of Coastal Zone Management, Essex County Greenbelt, Ipswich River Watershed Association and Salem Sound 2000.

DURATION: 1997 - 1999

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 97-02/104

PROJECT TITLE: Clearwater Estates Revision

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: This project will revise the "Clearwater Estates" development simulation program and guidebook to reflect new regulatory initiatives including the Riverfront Area, 401 Water Quality Certification, Title 5, and stormwater management. New training materials will be developed to assist conservation commissioners with application review, determining jurisdictional areas, performing alternative analysis, and writing effective Orders of Conditions. The new workshop materials will also outline how conservation commissions permitting actions can complement the EOEA watershed approach.

Specific project tasks will include:

1. revise Clearwater Estates guidebook to incorporate new regulatory revisions and performance standards;
2. develop new training materials including figures, maps, sample permit application forms, and sample plans;
3. develop training curriculum to address: application review, jurisdictional areas, site review and alternative analysis, performance standards and mitigation, writing effective Orders of Conditions, other applicable state and federal permits, and Certificates of Compliance;
4. conduct trial sessions for the training curriculum with DEP staff; and
5. print copies of revised Clearwater Estates training materials.

COST: \$112,500

FUNDING: \$90,000 by U.S. Environmental Protection Agency
\$22,500 by the Massachusetts Department of Environmental Protection

DURATION: 1997 - 1999

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 97-03/104

PROJECT TITLE: Assessment and Protection of Priority Wetland and Riparian Habitats for State-Listed Reptiles and Amphibians in Massachusetts

INVESTIGATOR: Massachusetts Division of Fisheries and Wildlife

LOCATION: Statewide

DESCRIPTION: This project proposes to gather detailed, site-specific data that will allow more effective protection of riparian and wetland habitats of six species of state-listed freshwater turtles and salamanders, either through regulatory mechanisms or acquisition. Rapid assessment techniques will be used to map and evaluate wetlands and adjacent upland habitats at priority sites and relative abundance and distribution of target species will be documented.

Specific tasks will include:

1. assess and prioritize known occurrences of 6 state-listed turtles and amphibians based on extent, quality and juxtaposition of habitats and their predicted ability to support target species;
2. assess distribution and relative abundance of target species at priority sites and map the types and boundaries of wetlands and uplands that are most likely to comprise the actual habitats of target species;
3. develop a list of priority areas recommended for acquisition; and
4. prepare a final report summarizing project results.

COST: \$43,750

FUNDING: \$35,000 by U.S. Environmental Protection Agency
\$ 8,750 by the Massachusetts Division of Fisheries and Wildlife

DURATION: 1997 - 1999

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 97-04/104

PROJECT TITLE: An Assessment of Stormwater Control in the Charles River Watershed

INVESTIGATOR: Charles River Watershed Association

LOCATION: Charles River Basin

DESCRIPTION: This project will gather information on the application of DEP's stormwater management performance standards to the Charles River watershed including costs, and draw general conclusions regarding the projected effect of the implementation of these standards on wetland resources and Charles River water quality.

Specific tasks will include:

1. develop detailed scope of work and workplan for project with the assistance of DEP and CZM staff;
2. collect project data and evaluate effectiveness of stormwater systems; and
3. prepare a final report summarizing project results.

COST: \$55,000

FUNDING: \$50,000 by U.S. Environmental Protection Agency
\$ 5,000 by the Charles River Watershed Association

DURATION: 1997 - 1999

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 97-05/104

PROJECT TITLE: Biomonitoring Support for the BRP Watershed Management Program

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: This project will provide reconnaissance and biomonitoring support to the Blackstone, Chicopee, Connecticut and Nashua Watershed Teams. The focus of the work will be to determine the percentage of waters that are safe for fishing, swimming and the support of aquatic life and recreation; and the number of freshwater fish consumption advisories.
Specific tasks will include:

1. prepare QAPP for habitat assessment and biomonitoring activities in project watersheds;
2. incorporate biomonitoring results in comprehensive assessment reports;
3. input aquatic life use assessments for surveyed streams; and
4. prepare quarterly reports on project activities.

COST: \$38,769

FUNDING: 100% by U.S. Environmental Protection Agency

DURATION: 1997 - 1999

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 97-06/104

PROJECT TITLE: Development of a GIS Map and Database of the Canoe River Aquifer

INVESTIGATOR: Town of Easton

LOCATION: Taunton River Basin

DESCRIPTION: This project will develop GIS information and conduct an outreach effort to begin an aggressive land acquisition program to protect the Canoe River Aquifer ACEC.

Specific tasks will include:

1. compile and digitize parcels from Assessor's maps in the Canoe River Aquifer for the area on 500 feet on both sides of the mainstem rivers, their main tributaries and within Zone IIs;
2. develop property owner database for identified parcels including owner, assessed value, acreage, location and other relevant information;
3. maintain and update GIS layer's developed for this project;
4. develop informational literature on the importance of the Canoe River Aquifer and distribute this information to property owners; and
5. provide a final project report which describes the activities undertaken and a summary of the results.

COST: \$54,000

FUNDING: \$38,500 by U.S. Environmental Protection Agency
\$15,500 by the Town of Easton

DURATION: 1997 - 1999

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 97-07/104

PROJECT TITLE: Hydrologic Model for the Ipswich River Basin

INVESTIGATOR: U.S. Geological Survey

LOCATION: Ipswich River Basin

DESCRIPTION: As a collaborative effort among DEM, DEP and USGS, this project will develop a water management (hydrologic) model to provide a scientific basis for water supply, water quality and aquatic habitat decisions in the Ipswich Basin. A methodology will be developed to couple groundwater and surface water flow. This integrated approach will allow the simulation of predevelopment conditions, current withdrawal conditions, and the prediction of future conditions such as changes in groundwater withdrawals or precipitation.

Specific tasks will include:

1. establish "natural" or baseline flow conditions in River prior to withdrawals;
2. provide data for Water Management Act permitting and safe yield evaluation;
3. account and document current withdrawals;
4. evaluate water supply alternatives;
5. evaluate various instream flow scenarios to determine resource impacts and to calibrate hydrologic model;
6. collect input data for hydrologic model to calculate firm yield to be used in Surface Water Supply permitting for Lynn, Salem/Beverly, Danvers/Middleton and Peabody; and
7. prepare final project report summarizing model results and utilization.

COST: \$300,000

FUNDING: \$75,000 by U.S. Environmental Protection Agency
\$75,000 by the Massachusetts Department of Environmental Management

\$150,000 by the U.S. Geological Survey

DURATION:

1997 - 1999

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 97-08/104

PROJECT TITLE: Salem Sound Nutrient Monitoring

INVESTIGATOR: Massachusetts Division of Marine Fisheries

LOCATION: North Coastal River Basin

DESCRIPTION: This project will contribute to a comprehensive marine resource inventory of Salem Sound to collect finfish, invertebrate and water quality data. The DMF will add more water quality sampling sites and tests for additional water quality constituents. Sampling effort will be coordinated with Salem Sound 2000 and DEP's North Coastal Watershed Team.

Specific tasks will include:

1. collect and analyze marine and freshwater water samples for chlorophyll-a, ammonium, nitrate, nitrite, ortho-phosphate, total dissolved nitrogen, total dissolved phosphorous, silicate, particulate nitrogen and particulate carbon;
2. input nutrient data into a database and summarize data; and
3. prepare a final report analyzing marine and freshwater resource information.

COST: \$14,584

FUNDING: 100% by U.S. Environmental Protection Agency

DURATION: 1997 - 1999

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 97-09/104

PROJECT TITLE: Project on Numeric Biocriteria: Two Unresolved Issues

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: This proposal is designed to address two issues relating to the current Biocriteria Pilot Study; specifically, to evaluate subecoregion difference in stream biota, if any, and formulate the biological indicators (fish and macroinvertebrates) that are essential to assess conditions and monitor changes in streams. Study expects to establish reference streams in 5 of the 13 Massachusetts Ecological Subregions. The study streams are located in the Connecticut, Westfield, Chicopee, Millers and Quinebaug River Basins.

Specific tasks will include:

1. collect and enumerate fish and macroinvertebrate samples in potential reference streams;
2. perform habitat assessments, collect water quality data (temperature, dissolve oxygen, pH, specific conductance and turbidity) and physico-chemical data on potential reference streams; and
3. evaluate and interpret biological data, habitat assessments and stream morphometric data and establish up to 5 reference streams in Ecological Subregions.

COST: \$26,500

FUNDING: 100% by U.S. Environmental Protection Agency

DURATION: 1997 - 1999

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 97-10/104

PROJECT TITLE: Source Water Protection Project

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: This project will further current efforts for source water protection by providing long-term, comprehensive program that is consistent with new regulatory requirements, other programs and the MWI. The project will also address water suppliers needs for technical assistance and will assist water suppliers develop protection plans.

Specific tasks will include:

1. provide on-site assistance to public surface suppliers and other municipal officials to:
 - a. assist with development and implementation of local protection plans and achieve cost savings offered by EPA;
 - b. address specific local watershed threats with information and recommendations for solutions;
 - c. encourage formation of local watershed committees;
 - d. assist with local vulnerability assessments required by SDWA;
 - e. help suppliers gain support for local measures; and
 - f. integrate newly defined watershed protection Zones A, B, & C into local planning efforts.
2. review draft local protection plans submitted by public surface water suppliers for DEP approval. Determine eligibility for cost-saving disinfection rule credit.
3. promote the enactment of improvements to the Mass. Drinking Water regulations for new land uses within the watersheds of new and expanding public surface water sources;
4. use source protection success stories gathered during prior project work, DWP awards program submittals, sanitary surveys and monitoring waiver applications to develop and distribute collection of brief case studies and contacts to form an in-formal peer assistance network among surface suppliers; evaluate transferability of this project to ground water sources.
5. Prepare a final report.

COST:	\$52,267
FUNDING:	\$52,267 by U.S. Environmental Protection Agency
DURATION:	1997 - 1999

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 104(b)(3) PROJECT 97-11/104

PROJECT TITLE: Establishment and Implementation of a Statewide Georeferenced Relational Database System to Manage Environmental Monitoring Data

INVESTIGATOR: Department of Environmental Protection

LOCATION: Statewide

DESCRIPTION: This project will further the development and implementation of a statewide relational database system for environmental monitoring data. Activities will focus on databases for toxicity testing, PALIS, fish contaminant monitoring, water quality data, waterbody system. These databases will directly support the function of the watersheds teams in implementing the 5-yr basin cycle.

Specific tasks will include:

1. update and maintain toxicity testing and chemical analysis results in the Toxicity Testing Database;
2. code all Massachusetts pond, lake, and impoundment polygons in PALIS system to facilitate linkage with GIS;
3. update FCMS with current data;
4. update and maintain Water Quality database for priority watersheds;
5. update and maintain WBS electronic reporting system; and
6. establish georeferences for waterbodies and sampling stations and incorporate in above databases as appropriate.

COST: \$ 30,000

FUNDING: 100% by U.S. Environmental Protection Agency

DURATION: 1997 - 1999